

Frankliniella schultzei

Distinguishing features

Both sexes fully winged. Body either brown with pronotum tibiae and tarsi paler, or body yellow with faint shadings on tergites; antennal segments III–V yellow at least at base; fore wing pale with dark setae. Antennae 8-segmented, III & IV each with a forked sense cone, segment VIII longer than VII. Head wider than long; three pairs of ocellar setae present, pair III arising close together between anterior margins of hind ocelli, as long as side of ocellar triangle; pair IV as long as distance between hind ocelli. Pronotum with 5 pairs of major setae; anteromarginal setae slightly shorter than anteroangulars, one pair of minor setae present medially between posteromarginal submedian setae. Metanotum with 2 pairs of setae at anterior margin, campaniform sensilla absent. Fore wing with 2 complete rows of veinal setae. Abdominal tergites VI–VIII with paired ctenidia, on VIII anterolateral to spiracle; posteromarginal comb on VIII not developed. Sternites III–VII without discal setae. Male smaller than female; tergite VIII with a few teeth laterally on posterior margin; sternites III–VII with broadly transverse pore plate.

Related species

The origin of the ocellar setae III between the posterior ocelli in this species is unusual within this genus, being found only in some members of the *F. minuta* group. *F. schultzei* is not only variable within and between populations, it also exists as one or more yellow and brown forms that are more or less distinct. The yellow form is possibly a distinct species, to which the name *F. sulphurea* applies. However, the two forms are equally widespread around the world, and both commonly occur together in parts of Africa, India, and Australia. The evidence for recognizing them as distinct species remains weak. Virus specialists have claimed that the "yellow form" is not a vector, but the common form carrying tospoviruses to crops in northeastern Australia is yellow. Further studies are needed to understand the morphological and molecular variation within this species complex (Gikonyo *et al.*, 2017), particularly because the molecular variation has yet to be correlated with any differences in biology (Hereward *et al.*, 2017). There are almost 240 species listed in the genus *Frankliniella*, with up to 130 further names placed into synonymy (Nakahara, 1997). This high rate of synonymy has been due to unrecognized variability in size and color of so many species.

Biological data

Breeding in flowers, and recorded from a very wide range of plant species. This species causes damage to various crops worldwide, both through feeding damage and through vectoring tospoviruses (TSWV, TCSV, GRSV). Studies on molecular diversity among populations of this species in Australia have suggested that several "sibling species" are involved (Hereward *et al.*, 2017), but no biological or host association differences have been demonstrated, and in Australia this species lives only on non-native plant species.

Distribution data

This species is widespread in tropical and subtropical countries but its country of origin remains unclear. It is generally considered to be from South America, although there remains a possibility that it came originally from Africa. Scarcely



Female (dark form)

Female (pale form)



Head & thoracic tergites Antenna

Head & pronotum



Head

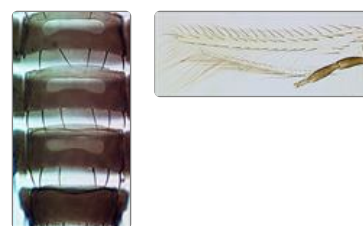
Meso & metanota



Tergites VII-IX

Female sternites I-III

Male tergite IX



Male sternites IV-VII

ten of the 240 known species of *Frankliniella* are considered native to anywhere other than to the Americas.

Family name

THRIPIDAE - THRIPINAE

Species name

Frankliniella schultzei (Trybom)

Original name and synonyms

Physopus schultzei Trybom, 1910: 151
Euthrips gossypii Shiraki, 1912: 56
Frankliniella sulphurea Schmutz, 1913: 1019
Frankliniella delicatula Bagnall, 1919: 263
Frankliniella trybomi Karny, 1920: 36
Frankliniella persetosa Karny, 1922: 97
Frankliniella dampfi Priesner, 1923: 64
Frankliniella tabacicola Karny, 1925: 4
Frankliniella dampfi interocellaris Karny, 1925: 126
Frankliniella africana Bagnall, 1926: 100
Frankliniella anglicana Bagnall, 1926: 281
Frankliniella aeschlyi Girault, 1927: 2
Parafrankliniella nigripes Girault, 1928: 4
Frankliniella paucispinosa Moulton, 1933: 122
Frankliniella kellyana Kelly & Mayne, 1934: 20
Frankliniella dampfi nana Priesner, 1936: 85
Frankliniella lycopersici Andrewartha, 1937: 163
Frankliniella favoniana Priesner, 1938: 30
Frankliniella pembertoni Moulton, 1940: 247
Frankliniella clitoriae Moulton, 1940: 248
Frankliniella schultzei nigra Moulton, 1948: 100
Frankliniella ipomoeae Moulton, 1948: 95

References

- Gikonyo MW, Niassy S, Moritz GB, Khamis FM, Magiri E & Subramanian S (2017) Resolving the taxonomic status of *Frankliniella schultzei* (Thysanoptera: Thripidae) colour forms in Kenya – a morphological-, biological-, molecular- and ecological-based approach. *International Journal of Tropical Insect Science* 37: 57–70.
- Hereward J, Hutchinson JA, McCulloch GA, Silva R & Walter GE (2017) Divergence among generalist herbivores: the *Frankliniella schultzei* species complex in Australia (Thysanoptera: Thripidae). *Arthropod-Plant Interactions* 11: 875–887.
- Mound LA & Marullo R (1996) The Thrips of Central and South America: An Introduction. *Memoirs on Entomology, International* 6: 1–488.
- Nakahara S (1997) Annotated list of the *Frankliniella* species of the world (Thysanoptera: Thripidae). *Contributions on Entomology, International* 2 (4): 355–389.